

COMPUTER APPLICATIONS

5

10

15

or establishing tables of data at one's workplace or even in relation to bank accounts.

20

30

35

Certain facilities for access to computers for authorised persons consisted for example in providing them with a card or even a personalised watch including transmission and reception means able to interact with a reader integrated in the computer structure using electromagnetic waves. As soon as the card or watch is sufficiently close to the reader, connection to the computer is automatic with no further need to enter a password, in order to simplify the access to the computer applications.

In the case of a wristwatch, storing data in a memory of the watch once the user is wearing it, and deleting it automatically when he removes the watch from his wrist, has even been envisaged as a security measure. The removal of the watch from the wrist prevents it from being used by an unauthorised person to access personal computer applications in the event that the watch is lost or stolen. Each time that the watch has to be used to access the computer, a procedure for storing access codes in the watch memory has to be performed.

European Patent No. 496344 discloses a system allowing a wearer of a wristwatch with an individual access code to be able to be automatically connected to the computer from his work station by moving his watch close to an antenna of a reader of the computer. The watch includes in particular an antenna and signal transmission and reception means for communication with the reader. A power source for the electronic components can be provided in the watch. The electronic components of the reader are integrated in the computer structure, while the external antenna of the reader is connected to the computer by an electric cable. The antenna takes the form of a flat coil housed in a mat for the keyboard.

As soon as the wearer of the watch moves away from the keyboard of the switched on computer, as a security measure, this blocks the keyboard controls and prevents anyone from being able to work with the personal applications of the wearer of the watch according to the given configuration of said computer. Moreover, the entry of an identification code is also envisaged, for example by means of the computer keyboard, at the beginning of the work session in order to prevent anyone being able to use the computer in the event that the watch is lost or stolen.

In the aforementioned document, it should be noted that the basic structure of the computer has to be modified so as to be able to house therein certain electronic components of the reader, which is a drawback. Moreover, it has not been suggested that access be automatically given to several personal or confidential applications protected by access codes on any work station connected to a computer inter-communication network. The approach of the watch with its individual access code only gives access authorisation to a work station locally, i.e. a work station forming part of the same network inside the same company. It is thus necessary to remember

The object which the invention proposes to achieve is to overcome the
aforecited drawbacks and to be able to authorise automatic access to several
computer applications with an access code, for example personal or confidential
applications, without it being necessary to remember all the codes of each of the
selected applications.

10 a) placing the portable object within the determined zone in order that the reader detects its presence, reads the readable word of the circuit memory and gives the instruction to the station to connect itself automatically to the communication network toward a checking file of a determined server for sending the readable word,

15 b) searching in the checking file to see whether the readable word is included in a list of authorised words,

 c) only if the readable word has been found in the list, sending from the checking file a password, addressed to storage means to open the read barrier, and

 d) communicating the access words contained in the storage means to the station in order to authorise said applications to be opened.

This object is also achieved as a result of a peripheral read unit intended to be in communication with a computer station which is characterised in that it includes signal transmission and reception means in order to be able to communicate with a portable object provided with a personalised electronic circuit having other signal transmission and reception means when the latter is located within a determined zone.

This object is also achieved as a result of a device for authorising access to computer applications including a portable object provided with a personalised electronic circuit having first signal transmission and reception means, and a peripheral read unit having second signal transmission and reception means for communicating with the portable object when it is located in a determined zone, the read unit being in communication with a computer station.

One advantage of the method for authorising access to computer applications according to the invention is that it allows any authorised person, even if not initiated in computer techniques, who has a personalised portable object provided with an electronic circuit having signal transmission and reception means for communicating with a read unit, to be easily and simply connected to personal computer applications through a computer work station. The computer station is connected to a computer inter-communication network either locally or world-wide. Further, access codes to the

Another advantage is that the connection to one's own computer applications
5 can occur at any work station without any particular configuration provided a read unit
is connected to one input of said station and that the station is connected to the
computer inter-communication network, preferably to a world-wide network. Greater
mobility of access is thus offered by using said communication network to be able to
look for the readable identification word in a list of authorised words of a checking file
10 belonging to a determined server.

Generally, the addresses of the applications to be opened by access words are mainly in the server interrogated in the communication network, while the corresponding access words are in the memory of the portable object's circuit. It is nonetheless conceivable for the addresses of the applications to also be stored in the memory of the circuit provided that it can contain enough access words and address words.

The read unit may be provided directly on any work station preferably so as to form a peripheral unit, but may also be onboard and connected to a standard socket of any work station. The read unit includes a storage module with the address of the predetermined server containing the check file, as well as all the software necessary to give the instruction to the station to which it is connected to connect itself to the predetermined server to the check file of said communication network. When travelling, just the portable object, as well as the read unit may be taken to avoid being burdened with undesirable or large objects.

The fact that the read unit is provided as a peripheral of the work station advantageously avoids having to modify the internal structure of said station. One

On printed circuit 5 of read unit 10, visible in Figure 3, are arranged in particular an oscillator 32 for generating the radio-frequency signals, an amplitude modulator 30

in order to modulate the signals as a function of the data to be sent to the transponder, a control element 31 receiving the signals from modulator 30 and from oscillator 32, a demodulator 34 for the signals received from transponder 20 followed by a filtering and amplification module for said data signals, and a data decoder 35 for transmission to the computer station. The unit also includes a storage module 33 in which an address of the determined server 8 which one wishes to interrogate, such as the server of the watch manufacturer, is stored, as well as address initiation software as will be described in the following description with regard to Figure 2.

The determined detection zone of read unit 10 depends on the available dimension of antenna 6. Portable object 7 is detected by read unit 10 from a short distance, for example between 2 and 5 cm, so as to force the user to remain very close to the station to open the personal or confidential applications or applications requiring payment with access codes. This precaution of proximity of detection prevents other carriers of portable objects with a transponder in proximity to the read unit disturbing the first user's access.

The computer mouse 11 has been shown in Figure 1 with an electric connection cable to another computer socket, but it is of course clear that it could be connected differently and that, in order to save on the number of inputs to the computer, the mouse could also be connected to mouse pad 3 and thus use cable 2 to activate the applications appearing on the screen.

Wristwatch 7 worn by a user of the work station contains a transponder 20 so as to be able to communicate data with read unit 10 when it is located within the determined detection zone. The electronic circuit of transponder 20 is for example the circuit V4050/64 manufactured by the company EM Microelectronic-Marin SA.

With reference to Figure 3, transponder 20 is formed of a coil acting as an antenna 28 connected to an electronic circuit for controlling the signals entering and leaving the transponder. The circuit has a ROM memory portion 27 in which are stored the serial number 12 and the identification code which can be read by the computer. These two words of 32 bits of ROM memory 27 are engraved by laser after said circuit is manufactured so as to personalise each circuit leaving production, and thus cannot be modified.

One portion of EEPROM memory portion 26 of the transponder includes 32 memory positions in which words of 32 bits are stored or will be stored during use with work station 1. These words are passwords and user name words for opening applications of the computer. These words are protected by a read or write barrier. Access to said words is only possible by entering a specific password of the read or

The addresses of the applications corresponding to the access words may also be stored in EEPROM memory 26 provided that there is sufficient space. However, it is more convenient to obtain them from the server which is interrogated.

An extractor of data 22 received from the read unit is directed towards a control logic module 25 linked to the memory. If the password equivalent to that of the read barrier of the memory is entered into transponder 20, the memory position words are encoded and modulated in a modulator 24 so that they are all transmitted via coil 28 towards read unit 10.

25 Instead of radio-frequency signals, high frequency signals (433 MHz) could also be used for the transmission of data and/or commands between the read unit and the portable object.

30 The portable object, which in the present case, is a wristwatch 7 comprising a personalised transponder 20, is moved towards read unit 10 until it is within a determined detection zone. Work station 1 to which read unit 10 is connected must be switched on in order in particular to be able to power read unit 10 so that it transmits detection signals of portable object 7. From this moment, read unit 10, which regularly
35 transmits interrogation radio-frequency signals, detects the presence of watch 7, since it receives a response from the interrogated transponder 20. After interrogation, transponder 20 sends a signal including the readable verification word, i.e. at least the

5

10

15

20

25

from server 8.

30

35

5

It should be noted that this change of access codes can only occur after having passed all the access authorisation steps.

10

15

25

30

35

5

10

transmission and reception means for communicating with the read unit.

15